

CLAIMS

1. A SV40 T antigen protein that lacks the ability to bind to the Bub1 protein.
2. A SV40 T antigen protein according to claim 1, which comprises the amino acid sequence shown in SEQ ID No. 1, or a functional fragment thereof
- 5 that retains the ability to immortalise a cell, with the proviso that the protein lacks one or more of the amino acid residues indicated at positions 89-97, or wherein one or more of said residues is mutated.
3. A SV40 T antigen protein according to claim 2, wherein the protein lacks or has mutated one or more of the residues 91, 94 and 95.
- 10 4. A SV40 T antigen protein according to claim 2 or claim 3, wherein amino acid residues 89-97 of T antigen are deleted or mutated.
5. A SV40 T antigen protein according to any preceding claim, wherein the protein does not bind to DNA.
6. A SV40 T antigen protein according to claim 5, wherein the protein
- 15 comprises a U19 mutation.
7. A SV40 T antigen protein according to any preceding claim, wherein the protein is the temperature-sensitive large T antigen.
8. A polynucleotide that encodes a SV40 T antigen protein according to any preceding claim or its complement.
- 20 9. A polynucleotide according to claim 8, the expressed product of which is temperature-sensitive.
10. A polynucleotide according to claim 8 or claim 9, further comprising the catalytic sub-unit of the telomerase complex.
11. A recombinant mammalian cell comprising a polynucleotide that encodes
- 25 T antigen, wherein the expressed T antigen is modified to prevent binding between the T antigen and Bub1.
12. A cell according to claim 11, which is a human cell.
13. A cell according to claim 11 or claim 12, wherein the cell is pluripotent.
14. A cell according to any of claims 11 to 13, wherein the cell is a
- 30 neuroepithelial cell, a mammary luminal cell or mammary fibroblast cell.
15. A cell according to any of claims 11 to 14, wherein the polynucleotide encodes the large T antigen.

16. A cell according to any of claims 11 to 15, wherein the oncogene is temperature-sensitive.
17. A cell according to any of claims 10 to 15 which is a human somatic cell.
18. A cell according to any of claims 10 to 16 wherein the T antigen has one  
5 or more of the amino acid residues 89 to 97 from SEQ ID NO. 1 deleted or mutated.
19. A cell according to claim 18, wherein the deleted amino acid residue is one or more of the tryptophan residues at position 91, 94 or 95 of SEQ ID NO. 1.
- 10 20. A cell according to any of claims 11 to 19, further comprising the catalytic sub-unit of the telomerase complex.
21. A cell according to claim 20, wherein the sub-unit is of the human telomerase complex.
22. A cell transformed with a polynucleotide according to any of claims 8 to  
15 10.
23. A cell according to any of claims 11 to 22, for therapeutic use.
24. Use of a cell according to any of claims 11 to 23, in the manufacture of a medicament for the treatment of a disorder characterised by cell loss or damage.
25. Use according to claim 24, wherein the disorder is a cognitive disorder  
20 resulting from brain cell loss or damage.
26. Use according to claim 24 or claim 25, wherein the disorder is selected from the group consisting of:
- Alzheimer's disease
  - Parkinson's disease.